

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 904419	FOR FURTHER ACTION		See Form PCT/PEA/416
International application No. PCT/JP2004/018968	International filing date (day/month/year) 13.12.2004	Priority date (day/month/year) 25.12.2003	
International Patent Classification (IPC) or national classification and IPC INV. B60K41/28			
Applicant TOYOTA JIDOSHA KABUSHIKI KAISHA et al.			
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau) a total of 4 sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>			
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input checked="" type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application</p>			
Date of submission of the demand 27.07.2005		Date of completion of this report 29.03.2006	
Name and mailing address of the international preliminary examining authority:  European Patent Office - Gitschiner Str. 103 D-10958 Berlin Tel. +49 30 25901 - 0 Fax: +49 30 25901 - 840		Authorized officer Tamme, H-M Telephone No. +49 30 25901-542 	

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/JP2004/018968

Box No. I Basis of the report

1. With regard to the **language**, this report is based on
- ☒ the international application in the language in which it was filed
 - ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of:
 - ☐ international search (under Rules 12.3(a) and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4(a))
 - ☐ international preliminary examination (under Rules 55.2(a) and/or 55.3(a))
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

Description, Pages

1-32 as originally filed

Claims, Numbers

1-18 received on 22.12.2005 with letter of 20.12.2005

Drawings, Sheets

1/16-16/16 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
 - ☐ any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/JP2004/018968

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	2-9, 11-18
	No: Claims	1, 10
Inventive step (IS)	Yes: Claims	
	No: Claims	1-18
Industrial applicability (IA)	Yes: Claims	1-18
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

1 Reference is made to the following documents:

D1: US 2002/016659 A1 (TASHIRO TSUTOMU ET AL) 7 February 2002 (2002-02-07)

D2: HARATA Y ET AL: "A simplified serial communication network within a vehicle" IEEE, 1 May 1989 (1989-05-01), pages 437-442, XP010086161

D3: GB-A-2 318 106 (SIEMENS AKTIENGESELLSCHAFT) 15 April 1998 (1998-04-15)

2 With respect to independent claim 1, D2 shows an integral control system for vehicle control, comprising at least three subsystems (Fig.2) operating autonomously and in parallel, dispensable of a hierarchical system for a level higher than said subsystem, wherein said subsystem comprises a sensing unit (CPU for sensor) for sensing information related to an operation request with respect to at least one of said subsystems, a connection unit (implicit) for connection with another subsystem other than its own subsystem, and a generation unit (implicit, Fig.3) for generating information related to an individual control target of its own subsystem based on said sensed information related to an operation request.

Therefore, the subject-matter of claim 1 is not new.

2.1 With respect to claim 2, it is generally known in the field of control systems to use arbitration units in order to arbitrate a plurality of received information. Commonly, such arbitration unit is also called judging unit. Therefore, it would be obvious for a skilled person to apply this common practice in the control system of D2 in order to weight and/or judge received information and to arrive at a control system according

to claim 2. Renaming a well known and commonly employed judging unit by arbitration unit cannot justify an inventive step.

Thus, the subject-matter of claim 2 is not inventive.

- 3 Referring to independant claim 3, the subject-matter of claim 3 differs from D2 that *"when arbitration information arbitrated at each said subsystem is transmitted to the arbitration unit to another subsystem, control is executed at said another subsystem based on said transmitted arbitration information"*.

Concerning the presence of an arbitration unit in D2 after all it is referred to point 2.1. If such arbitration unit cannot be considered to be implicitly present in each subsystem in D2, its employment is not considered to involve an inventive step. Along with that, *the arbitration unit in said subsystem would be connected between each of said subsystem via High Level Network of D2*. Moreover, the difference as indicated above is common practice i control systems that a skilled person would easily apply in D2 in order to execute a control in one subsystem based on information in another subsystem.

Therefore, the subject-matter of claim 3 does not involve an inventive step.

- 3.1 Consequently, dependent claims 4 to 9 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step, the reasons being as follows:
- 3.2 Referring to claims 4 to 6, the features concern common and obvious characteristics of arbitration units.
- 3.3 Referring to claim 7 the features are already known from D2 (Fig.2 and implicit) with the exception of a steering control subsystem. A steering control subsystem as such is generally known and its introduction in the network system of D2 would be considered by a skilled person without exercise of inventive skill for improving response times.

- 3.4 Concerning claim 8, the feature is generally known, see D1, paragraph 0102, and could be applied without inventive skill in D2 in order to improve comfort.
- 3.5 With respect to claim 9, a stabilization subsystem is known from D3 and its employment in a control system of D2 for increasing driving safety would be obvious for a skilled person.
- 4 Referring to claims 10 to 18, the subject-matter of these claims is substantially identical with the one of claims 1 to 9. Therefore, what has been said before applies mutatis mutandis to claims 10 to 18.

Re Item VII

Certain defects in the international application

- 1 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents D1, D2 and D3 is not mentioned in the description, nor are these documents identified therein.

Re Item VIII

Certain observations on the international application

- 1 The present application does not fulfill the requirements of Article 6 PCT in combination with Rule 6.1(a) PCT because of lack of conciseness of the present set of claims, see also PCT/GL/ISPE/1 Appendix to Chapter 5 "Conciseness". This, because the terms "unit" and "means" are substantially identical and by that the difference of the scope of the claims 1 to 9 and the scope of claims 10 to 18 is rendered unclear.

EPO - DG 1

22.12.2005

(94)

CLAIMS

1. (Amended) An integrated control system for vehicle control, comprising at least three subsystems (PT, ECB, STR) operating autonomously and in parallel, dispensable of a hierarchical system for a level higher than said subsystem,

wherein said subsystem (PT, ECB, STR) comprises

a sensing unit for sensing information related to an operation request with respect to at least one of said subsystems (PT, ECB, STR),

a connection unit for connection with another subsystem other than its own subsystem, and

a generation unit for generating information related to an individual control target of its own subsystem based on said sensed information related to an operation request.

2. The vehicle integrated control system according to claim 1, wherein said generation unit includes an arbitration unit for arbitrating a plurality of information to generate information related to an individual control target of its own subsystem, based on said sensed information related to an operation request.

3. (Amended) An integrated control system for vehicle control, comprising at least three subsystems (PT, ECB, STR) operating autonomously and in parallel, dispensable of a hierarchical system for a level higher than said subsystem,

wherein said subsystem (PT, ECB, STR) comprises

a sensing unit for sensing information related to an operation request with respect to at least one of said subsystems (PT, ECB, STR),

a connection unit for connection with another system other than its own subsystem, and

an arbitration unit for arbitrating a plurality of information to generate

information related to an individual control target of its own subsystem, based on said sensed information related to an operation request,

said arbitration unit in said subsystem being connected between each of said subsystem, and

when arbitration information arbitrated at each said subsystem is transmitted to the arbitration unit of another subsystem, control is executed at said another subsystem based on said transmitted arbitration information.

4. The vehicle integrated control system according to claim 2 or 3, wherein said arbitration unit determines priority of information.

5. The vehicle integrated control system according to claim 2 or 3, wherein said arbitration unit corrects information.

6. The vehicle integrated control system according to claim 2 or 3, wherein said arbitration unit processes information.

7. The vehicle integrated control system according to any of claims 1-3, wherein said subsystem comprises a driving system control subsystem (PT), a brake system control subsystem (ECB), and a steering system control subsystem (STR).

8. The vehicle integrated control system according to claim 7, wherein said subsystem further comprises an automatic cruise subsystem controlling said vehicle for automatic cruising or pseudo automatic cruising of said vehicle.

9. The vehicle integrated control system according to claim 7, wherein said subsystem further comprises a dynamic stabilization subsystem controlling said vehicle so as to stabilize a behavior state of said vehicle.

10. (Amended) An integrated control system for vehicle control, comprising at least three subsystems (PT, ECB, STR) operating autonomously and in parallel, dispensable of a hierarchical system for a level higher than said subsystem, wherein said subsystem (PT, ECB, STR) comprises
sensing means for sensing information related to an operation request with respect to at least one of said subsystems (PT, ECB, STR),
connection means for connection with another subsystem other than its own subsystem, and
generation means for generating information related to an individual control target of its own subsystem based on said sensed information related to an operation request.

11. The vehicle integrated control system according to claim 10, wherein said generation means includes arbitration means for arbitrating a plurality of information to generate information related to an individual control target of its own subsystem, based on said sensed information related to an operation request.

12. (Amended) An integrated control system for vehicle control, comprising at least three subsystems (PT, ECB, STR) operating autonomously and in parallel, dispensable of a hierarchical system for a level higher than said subsystem, wherein said subsystem (PT, ECB, STR) comprises
sensing means for sensing information related to an operation request with respect to at least one of said subsystems (PT, ECB, STR),
connection means for connection with another system other than its own subsystem, and
arbitration means for arbitrating a plurality of information to generate information related to an individual control target of its own subsystem, based on said

sensed information related to an operation request,

said arbitration means in said subsystem being connected between each of said subsystem, and

when arbitration information arbitrated at each said subsystem is transmitted to the arbitration unit of another subsystem, control is executed at said another subsystem based on said transmitted arbitration information.

13. The vehicle integrated control system according to claim 11 or 12, wherein said arbitration means includes means for determining priority of information.

14. The vehicle integrated control system according to claim 11 or 12, wherein said arbitration means includes means for correcting information.

15. The vehicle integrated control system according to claim 11 or 12, wherein said arbitration means includes means for processing information.

16. The vehicle integrated control system according to any of claims 10-12, wherein said subsystem comprises a driving system control subsystem (PT), a brake system control subsystem (ECB), and a steering system control subsystem (STR).

17. The vehicle integrated control system according to claim 16, wherein said subsystem further comprises an automatic cruise subsystem controlling said vehicle for automatic cruising or pseudo automatic cruising of said vehicle.

18. The vehicle integrated control system according to claim 16, wherein said subsystem further comprises a dynamic stabilization subsystem controlling said vehicle so as to stabilize a behavior state of said vehicle.